

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	7909	((705/28) or (705/29) or (707/200) or (707/102) or (705/23) or (705/22)). CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2006/03/08 12:32
L2	649	1 and ((asset product) WITH component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 12:35
L3	183	2 and ((asset product) near2 identif\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 13:11
L4	23	3 and ((asset product) with ("purchase order" "PO"))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 13:10
L5	0	3 and ((asset product) with ("purchase order"))	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:11
L6	0	1 and ((asset product) with ("purchase order"))	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:11
L7	0	1 and ((asset product) with ("purchase order")).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:11
L8	587	1 and ((asset product) near2 identif\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 13:11
L9	0	1 and ((asset product) near2 identif\$4)	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:12
L10	0	1 and ((asset product) near2 identif\$4).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:12
L11	0	1 and "asset record"	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:13
L12	0	1 and (asset near record).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:14
L13	0	1 and (product near record).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:14
L14	0	1 and (product near identif\$4).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:15
L15	4	1 and (component).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:15

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	8560	((705/28) or (705/29) or (707/200) or (707/102) or (705/23) or (705/22) or (700/106) or (700/95) or (700/107)). CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2006/03/08 14:18
L2	806	1 and ((asset product) WITH component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 14:19
L3	216	2 and ((asset product) near2 identif\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 14:19
L4	23	3 and ((asset product) with ("purchase order" "PO"))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 14:19
L5	4	1 and (component).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 14:20

*Considered all*

*Considered all*

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	782	705/28.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/01 11:29
S2	135	705/28.ccls. and (generat\$3 creat\$3) NEAR2 (record file)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/01/05 17:35
<i>considered</i> S3	112	(705/28.ccls. and (generat\$3 creat\$3) NEAR2 (record file)) and (database "data base")	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/01/05 17:31
S4	4	"5424944".URPN.	USPAT	OR	ON	2003/04/01 16:49
S5	8	("4974166"   "5025140"   "5072400"   "5088045"   "5093794"   "5159548"   "5241671"   "5243531").PN.	USPAT	OR	ON	2003/04/01 16:49
S6	1196	707/200.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 09:57
S7	1572	707/102.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 09:58
S8	2677	707/200.ccls. or 707/102.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 09:58
S9	1075	(707/200.ccls. or 707/102.ccls.) and (generat\$3 creat\$3) NEAR2 (record file)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:17
S10	841	((707/200.ccls. or 707/102.ccls.) and (generat\$3 creat\$3) NEAR2 (record file)) and (database "data base")	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:19
<i>considered</i> S11	44	((((707/200.ccls. or 707/102.ccls.) and (generat\$3 creat\$3) NEAR2 (record file)) and (database "data base"))) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code")	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:20
S12	40599	(generat\$3 creat\$3) NEAR2 (record file)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:19

## EAST Search History

S13	17799	((generat\$3 creat\$3) NEAR2 (record file)) and (database "data base")	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:20
S14	1778	((((generat\$3 creat\$3) NEAR2 (record file)) and (database "data base"))) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code")	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:21
S15	495	((((generat\$3 creat\$3) NEAR2 (record file)) and (database "data base"))) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code") ) and (manag\$5 near3 database)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:23
S16	69	(((((generat\$3 creat\$3) NEAR2 (record file)) and (database "data base"))) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code") ) and (manag\$5 near3 database)) and ((purchase buy) adj order)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:26
S17	66	((((((generat\$3 creat\$3) NEAR2 (record file)) and (database "data base"))) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code") ) and (manag\$5 near3 database)) and ((purchase buy) adj order)) not (((707/200.ccls. or 707/102.ccls.) and (generat\$3 creat\$3) NEAR2 (record file)) and (database "data base"))) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code") )	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:26
S18	53	((705/28.ccls. and (generat\$3 creat\$3) NEAR2 (record file)) and (database "data base"))) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code")	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:28
S19	3	((((((generat\$3 creat\$3) NEAR2 (record file)) and (database "data base"))) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code") ) and (manag\$5 near3 database)) and ((purchase buy) adj order)) and (((707/200.ccls. or 707/102.ccls.) and (generat\$3 creat\$3) NEAR2 (record file)) and (database "data base"))) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code") )	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:30

## EAST Search History

<i>Considered</i> S20	10	((((((generat\$3 creat\$3) NEAR2 (record file)) and (database "data base")) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code" ) and (manag\$5 near3 database)) and ((purchase buy) adj order)) and (((705/28.ccls. and (generat\$3 creat\$3) NEAR2 (record file)) and (database "data base")) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code" ) )	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:31
<i>Considered</i> S21	56	(((((((generat\$3 creat\$3) NEAR2 (record file)) and (database "data base")) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code" ) and (manag\$5 near3 database)) and ((purchase buy) adj order)) not (((707/200.ccls. or 707/102.ccls.) and (generat\$3 creat\$3) NEAR2 (record file)) and (database "data base")) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code" ) ) not (((705/28.ccls. and (generat\$3 creat\$3) NEAR2 (record file)) and (database "data base")) and ((tag\$4 NEAR2 ("ID" identification "RFID")) "bar code" "bar-code" ) )	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2003/04/02 10:38

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1139	705/28.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 12:31
S2	5839	705/28.ccls. 705/26.ccls. 705/29.ccls. 705/7.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 11:57
<i>consider</i> S3	10	S2 and "asset record"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 13:12
S4	75	S2 and (asset WITH component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 12:34
S5	69	S4 and (order\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/01/05 17:51
S6	50	S4 and (order\$3 same component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:43
S7	16	S6 and "purchase order"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:38
<i>consider</i> S8	14	S7 not S3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:47
S9	6317	705/28.ccls. 705/26.ccls. 705/29.ccls. 705/7.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 11:59
S10	271	S9 and (order\$3 near2 component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:40
S11	25	S10 and (track\$3 near2 component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:48

## EAST Search History

S12	24	S11 and manage\$4	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:01
S13	23	S12 and (record file)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:44
S14	8	S13 and (updat\$3 near3 (record file))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:44
S15	35	S9 and (asset near2 (record file))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:48
S16	4	S15 and (order\$3 near2 component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:40
S17	6317	705/28.ccls. 705/26.ccls. 705/29.ccls. 705/7.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:43
S18	79	S17 and (asset WITH component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:49
S19	52	S18 and (order\$3 same component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:43
S20	47	S19 and (record file)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:44
S21	10	S19 and (updat\$3 near3 (record file))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:45
S22	8	S21 not S16	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/05/04 12:45
S23	7190	705/28.ccls. 705/26.ccls. 705/29.ccls. 705/7.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:47

## EAST Search History

S24	12	S23 and "asset record"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:50
<i>considered</i> S25	92	S23 and (asset WITH component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:47
<i>considered</i> S26	12	S23 and "asset record"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:51
S27	92	S23 and (asset WITH component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:47
S28	60	S27 and (order\$3 same component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:50
S29	17	S28 and "purchase order"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:47
<i>considered</i> S30	15	S29 not S26	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:49
S31	7190	705/28.ccls. 705/26.ccls. 705/29.ccls. 705/7.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:48
S32	332	S31 and (order\$3 near2 component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:48
<i>considered</i> S33	34	S32 and (track\$3 near2 component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:49
<i>considered</i> S34	39	S31 and (asset near2 (record file))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:49
S35	7190	705/28.ccls. 705/26.ccls. 705/29.ccls. 705/7.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:49



## EAST Search History

S36	92	S35 and (asset WITH component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:49
<i>considered</i> S37	21	S23 and ((asset near2 identif\$3) and (component near3 asset))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/12/22 15:52
S38	7909	((705/28) or (705/29) or (707/200) or (707/102) or (705/23) or (705/22)). CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2006/03/08 14:18
S39	649	S38 and ((asset product) WITH component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 14:19
S40	183	S39 and ((asset product) near2 identif\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 14:19
<i>considered</i> S41	23	S40 and ((asset product) with ("purchase order" "PO"))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 14:19
S42	0	S40 and ((asset product) with ("purchase order"))	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:11
S43	0	S38 and ((asset product) with ("purchase order"))	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:11
S44	0	S38 and ((asset product) with ("purchase order")).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:11
S45	587	S38 and ((asset product) near2 identif\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 13:11
S46	0	S38 and ((asset product) near2 identif\$4)	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:12
S47	0	S38 and ((asset product) near2 identif\$4).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:12
S48	0	S38 and "asset record"	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:13
S49	0	S38 and (asset near record).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:14
S50	0	S38 and (product near record).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:14
S51	0	S38 and (product near identif\$4).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 13:15

## EAST Search History

S52	4	S38 and (component).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 14:20
S53	8560	((705/28) or (705/29) or (707/200) or (707/102) or (705/23) or (705/22) or (700/106) or (700/95) or (700/107)). CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2006/03/08 14:18
S54	806	S53 and ((asset product) WITH component)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 14:19
S55	216	S54 and ((asset product) near2 identif\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 14:19
S56	23	S55 and ((asset product) with ("purchase order" "PO"))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/03/08 14:19
S57	4	S53 and (component).ab.	EPO; JPO; DERWENT	OR	ON	2006/03/08 14:20

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**Search Report****Database Name      Database Number**

ABI/INFORM 15  
 PROMT (90-  
 PRESENT) 16  
 PROMT (1972-1989) 160  
 COMPUTER  
 DATABASE 275  
 TRADE&INDUSTRY 148

**Set****Description**

S1 ((component AND identif?) AND (purchase(n)  
 order))  
 S2 PY=((1970:2001))  
 S3 S1 and S2  
 S4 S3 and ((INVENTORY OR INVENTORIES)(3N)  
 (MANAGEMENT OR MANAGING) OR (JIT OR  
 JUST(2N)TIME) OR (MANAGING OR  
 CONTROL? OR TRACK?)(3N)  
 (MERCHANDISE? ? OR PRODUCT? ? OR  
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 S5 RD  
 S6 SORT /ALL/pd,a

- ☐ 1 An inventory control and money management system that works. - Dec - 1984 - Gale Group Trade and Industry Database™
- ☐ 2 Modular maintenance package offers flexibility, control. (computer-aided system) (column) - Jan 10 - 1985 - Gale Group Trade and Industry Database™
- ☐ 3 A plant engineer's guide to microcomputer applications software. (directory) (illustration) - June 27 - 1985 - Gale Group Trade and Industry Database™
- ☐ 4 Integration puts plastics recycler on top of the heap. (Wellman Industries) (company profile) - Sept - 1986 - Gale Group Trade and Industry Database™
- ☐ 5 Upgrading spare parts management. - Sept 11 - 1986 - Gale Group Trade and Industry Database™
- ☐ 6 RealWorld Releases Enhanced Accounting Software Line including New Purchase Order Package. - September 25, 1986 - Gale Group PROMT®
- ☐ 7 Maintenance management software. - June 18 - 1987 - Gale Group Trade and Industry Database™
- 8 Automatic identification is flying high; a report on the impact on manufacturing and

- ☐ **distribution of automatic identification technology. (special advertising section)** - Aug 24 - 1987 - Gale Group Trade and Industry Database™
- ☐ **9 Cost justification for materials management. (on-line real-time materials management system)** - Jan - 1988 - Gale Group Computer Database™
- ☐ **10 Systems integrators: numbers and responsibilities increase. (Systems Integration II supplement)** - March - 1988 - Gale Group Trade and Industry Database™
- ☐ **11 Applications software. (buyers guide)** - Winter - 1988 - Gale Group Computer Database™
- ☐ **12 System controls for electronic data interchange. (The Practitioner & the Computer)** - June - 1989 - Gale Group Trade and Industry Database™
- ☐ **13 Single sourcing: short-term savings versus long-term problems.** - Summer - 1989 - Gale Group Trade and Industry Database™
- ☐ **14 The buyer-supplier relationship in total quality management.** - Summer - 1989 - Gale Group Trade and Industry Database™
- ☐ **15 Westinghouse gets respect at last. (includes related article on Westinghouse Productivity and Quality Center) (company profile)** - July 3 - 1989 - Gale Group Trade and Industry Database™
- ☐ **16 Making the most of your vendor relationships. (looking to suppliers for higher quality; includes related articles on manufacturer/vendor relations)** - July 10 - 1989 - Gale Group Trade and Industry Database™
- ☐ **17 Purchasing software: readers quiz vendors.** - August - 1989 - Gale Group Trade and Industry Database™
- ☐ **18 Small parts system makes big products fly. (Hughes Aircraft Corp. Missile Systems Group inventory control)** - August - 1989 - Gale Group Trade and Industry Database™
- ☐ **19 The principal as manager. (school district purchasing departments) (Schools Inc. - supplement)** - Sept - 1989 - Gale Group Computer Database™
- ☐ **20 Auto. ID & EDI: managing in the '90s. (report on automatic identification and electronic data interchange technology)** - Sept - 1989 - Gale Group Trade and Industry Database™

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ABI/INFORM 15  
 PROMT (90-  
 PRESENT) 16  
 PROMT (1972-1989) 160  
 COMPUTER  
 DATABASE 275  
 TRADE&INDUSTRY 148

**Set****Description**

S1 ((component AND (identif?(3n)(asset OR  
 product))) AND (purchase(n)order))  
 S2 PY=((1970:2001))  
 S3 S1 and S2  
 S3 and ((INVENTORY OR INVENTORIES)(3N)  
 (MANAGEMENT OR MANAGING) OR (JIT OR  
 JUST(2N)TIME) OR (MANAGING OR  
 S4 CONTROL? OR TRACK?)(3N)  
 (MERCHANDISE? ? OR PRODUCT? ? OR  
 GOOD? ? OR RESOURCE? ?))  
 S5 RD  
 S6 SORT /ALL/pd,a

- ☐ 1 An inventory control and money management system that works. - Dec - 1984 - Gale Group Trade and Industry Database™
- ☐ 2 Automatic identification is flying high; a report on the impact on manufacturing and distribution of automatic identification technology. (special advertising section) - Aug 24 - 1987 - Gale Group Trade and Industry Database™
- ☐ 3 Auto. ID & EDI: managing in the '90s. (report on automatic identification and electronic data interchange technology) - Sept - 1989 - Gale Group Trade and Industry Database™
- ☐ 4 Bar coding system tracks telecommunications equipment. (Kentrox Industries Inc. distribution system) (Auto. ID Digest special section) - Sept - 1989 - Gale Group Trade and Industry Database™
- ☐ 5 Product Costing at Caterpillar - Feb 1991 - Word Count: 4397 - ABI/INFORM®
- ☐ 6 ISO 9000 applied to leather production - April - 1991 - Word Count: 2664 - Gale Group PROMT®
- ☐ 7 Learning from a CIM Experience - Jul 1991 - Word Count: 3402 - ABI/INFORM®

- ☐ 8 An exercise in EDI: A cake walk for large retailers, electronic data interchange can be a strenuous workout for small suppliers. (includes related articles on the future of EDI and the design and construction of EDI) - Nov - 1991 - Gale Group Computer Database™
- ☐ 9 Integrating the global pipeline: Logistics systems architectures - 1992 - Word Count: 7108 - ABI/INFORM®
- ☐ 10 "Heroic" engineering takes more than heroes. (includes related article on product development and engineering) (Product Design and Delivery) - Wntr - 1992 - Gale Group Trade and Industry Database™
- ☐ 11 Strategic Data Planning: Lessons from the Field - Mar 1992 - Word Count: 13365 - ABI/INFORM®
- ☐ 12 Software Shipper: "Mega Orders, Micro Errors" - May 1992 - Word Count: 1437 - ABI/INFORM®
- ☐ 13 Software shipper: "mega orders, micro errors." (Prism's use of EWARE - integrated electronic warehouse and distribution control system) (Inside Warehousing & Distribution) - May - 1992 - Gale Group Trade and Industry Database™
- ☐ 14 Improving materials cost - 1993 - Word Count: 3879 - ABI/INFORM®
- ☐ 15 New specs, broader boundaries for EDI. (Electronic Data Interchange) - Feb - 1993 - Gale Group Trade and Industry Database™
- ☐ 16 Knowledge base manufacturing: the leading edge in manufacturing business systems. - May - 1993 - Gale Group Trade and Industry Database™
- ☐ 17 Partnership procurement of sheet metalwork - Oct 1993 - Word Count: 1133 - ABI/INFORM®
- ☐ 18 KnowledgeBase manufacturing - 1994 - Word Count: 3169 - ABI/INFORM®
- ☐ 19 Marketing information systems for consumer products companies: A management overview - 1995 - Word Count: 6847 - ABI/INFORM®
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ABI/INFORM 15  
 PROMT (90-  
 PRESENT) 16  
 PROMT (1972-1989) 160  
 COMPUTER  
 DATABASE 275  
 TRADE&INDUSTRY 148

**Set****Description**

S1 ((component AND (identif?(3n)(asset OR  
 product))) AND (purchase(n)order))  
 S2 PY=((1970:2001))  
 S3 S1 and S2  
 S3 and ((INVENTORY OR INVENTORIES)(3N)  
 (MANAGEMENT OR MANAGING) OR (JIT OR  
 JUST(2N)TIME) OR (MANAGING OR  
 S4 CONTROL? OR TRACK?)(3N)  
 (MERCHANDISE? ? OR PRODUCT? ? OR  
 GOOD? ? OR RESOURCE? ?))  
 S5 RD  
 S6 SORT /ALL/pd,a

- ☐ **21 Evolution in EDI** - Aug 1995 - Word Count: 2355 - ABI/INFORM®
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- ☐ 30 Manufacturing planning and execution software interfaces - 2000 - Word Count: 6826 - ABI/INFORM®
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**Search Report****Database Name Database Number**

BUSINESS &  
INDUS 9

GLOBAL  
REPORTER 20

KR/T BUS NEWS 608

NEW PRODUCT  
ANNMNT 621

MCGRAW-HILL  
PUBS 624

SAN JOSE  
MERCURY 634

NEWSLETTER  
DB 636

BUSINESS WIRE 610

BUSINESS WIRE 810

PR NEWSWIRE 613

PR NEWSWIRE 813

FT  
INFORMATION 476

LTD

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AND (purchase(n)order))

S2 PY=((1970:2001))

S3 S1 and S2

S4 S3 and ((INVENTORY OR INVENTORIES)(3N)  
(MANAGEMENT OR MANAGING) OR (JIT OR  
JUST(2N)TIME) OR (MANAGING OR CONTROL?  
OR TRACK?)(3N)(MERCHANDISE? ? OR  
PRODUCT? ? OR GOOD? ? OR RESOURCE? ?))

S5 RD

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☐ 1 **BAR CODE STANDARDS HELP EASE ADOPTION** - May 1 - 1997 - Gale Group  
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INSPEC, 1898+      2

NTIS      6

EI COMPENDEX  
PLUS      8DISSERTATION  
ABS      35INSIDE  
CONFERENCES      65APPLIED SCI &  
TECH      99

TECTRENDS      256

GLOBALBASE      583

JAPIO - PAJ      347

**Set****Description**S1      ((component AND (identif?(3n)(asset OR product)))  
AND (purchase(n)order))

S2      CY,PY=((1970:2001))

S3      S1 and S2

S4      S3 and ((INVENTORY OR INVENTORIES)(3N)  
(MANAGEMENT OR MANAGING) or (JIT OR JUST  
(2N)TIME) or (MANAGING OR CONTROL? OR  
TRACK?)(3N)(MERCHANDISE? ? OR PRODUCT? ?  
OR GOOD? ? OR RESOURCE? ?))

S5      RD

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- Don't over-specify: use only the search options you really need -- leave the others blank.
- Exclude "implied concepts": leave out words like 'research' or 'effects.'
- Use more wildcards to search different word endings: use COMPUTER? in place of COMPUTER.
- Check the format of your entry. Follow the Search Tips examples shown on the search page.
- Check for misspelled words.
- Check that you are using parentheses correctly when you combine words with AND, OR, NOT.

For more tips on searching, see the [Help page](#).

*Considered***An inventory control and money management system that works.**

Manus, Connie

*Medical Laboratory Observer , Volume: 16 , Page: 63(5) , Dec 1984*

An inventory control and money management system that works

There are no dazzling shortcuts to keeping track of inventory and expenditures for supplies, but the next best thing is a system that runs smoothly and saves the laboratory time and money.

That's what we have in our 300-bed hospital chemistry department. The system evolved over a period of 18 months, and we had to strain at times to get the right elements in place. As with other kinds of activities, the more effort put in at the outset, the less effort required thereafter. For example, we get automatic cues to reorder when supplies run low-- and not from a computer, although data processing plays a part elsewhere.

The principal benefits of our inventory and expenditure controls are elimination of rush supply orders and a firm grasp of spending trends, which makes it much easier to budget for our future needs and new procedures. Our system consists of five components: a card file, inventory sheets, reorder tags, a requisition book, and a microcomputer program. I'll describe each component in turn.

Card file. There's an index card for each item or related group of items that we order, listing the vendor, item number, price and the date it became effective, and the account number to which the expenditure is charged. We update the file when vendors, supplies, or prices change, or when we purchase a new instrument.

The file is arranged alphabetically. In some instances, we use familiar headings, such as 1260 (the model number of one of our analyzers) or "protein electrophoresis," and group together all parts and supplies falling into the category. On cards for pipet tips and a number of other products, several sizes and styles are noted.

Color codes help identify general product categories quickly. Quality control products are on pink cards; reagents, white cards; instrument parts, blue cards; and disposables, yellow cards. Many items are cross-referenced. Look up "lamp," for example, and you are instructed to "see bulb." Because the file is logical and comprehensive, any other authorized staff member can easily order supplies when I'm out.

Inventory sheets. These forms, routinely used by bench technologists, list supplies that must be inventoried monthly or bimonthly, depending on the rate of consumption. Ten sheets in all are kept on a clipboard atop a bookshelf, and a technologist pulls the one or two sheets for his or her work station.

To begin with, there are two columns of previously entered figures--approximate monthly usage of each item, based on purchasing history, and maximum and minimum quantities that we want to carry.

The monthly usage data give us a basis for changing, say, the next month's order if we expect a heavier than usual workload. For example, we perform many more alcohol assays during the New Year's

holiday period, so in December we order more of these kits than monthly usage indicates.

Entries in the monthly usage and maximum/minimum columns might change if a technologist reports that we are heavily overstocked on an item. If a check discloses that our consumption has dropped, we may scale down our average use and the levels we want in stock. This leads to fewer unnecessary orders.

Additional columns provide space for entering the amount of each item on hand as of specified inventory dates. These are filled in by the technologist. I review inventory sheets once a week. If we're running short of an item, I reorder it and record the quantity ordered just below the technologist's latest entry.

The format for the sheets varies with the area of the chemistry department. In our RIA/EIA section, for example, most reagents are on standing order. So I just attach their delivery schedule to the RIA/EIA inventory sheet.

Likewise, reagents for one of our chemistry analyzers are routinely shipped each month. To reflect this, the analyzer's inventory sheet has an extra line--'nothing needed.' That line is checked off if we have enough reagents as indicated by minimum stock tags in storage areas. An exact count of reagent supply is unnecessary unless we're below minimum.

Reorder tags. We purchased eye-catching 3 2-inch red tags that announce "Reorder This Item Now!" They are attached to replacement parts and other slowuse items, such as the spare probe assembly for the Stat/routine analyzer, detergent for the glasswarewashing area, and 10N sodium hydroxide. They are also used for items ordered in bulk quantities, such as pipet tips. The tags are placed toward the back of the shelf--on the eighth of 10 bags of pipet tips, for example. A technologist who draws a tagged item from stock places the tag on my desk as a signal to reorder.

Full staff cooperation is necessary for this aspect of the system to work. Technologists have an incentive to cooperate because the tags streamline our inventory sheets and eliminate many items from periodic counting. That makes the job of taking inventory much less tedious.

Requisition book. This consolidates paperwork on orders and deliveries. I keep a copy of each requisition in the book, marked with an advertised price or a price quoted to me. When the purchasing department sends me a copy of the purchase order (PO), I mark the PO number on the requisition in the book and verify that the purchasing department obtained the correct price from the supplier.

The book has three sections: on order, received, and standing orders. As items are delivered, they're checked off on the requisition. The receiving technologist makes certain that the shipment matches what was ordered. When we have taken delivery of all items on a requisition, I move the requisition to the received section of the book. Normally, the book contains no more than one month's worth of requisitions. By mid-September, most of August's orders have been received.

We handle standing orders differently. For each one, an 8 5-inch index card lists the vendor, item, quantity per shipment, shipping schedule, PO number, and starting and ending dates of the order (Figure I). All are kept in the standing order section of the requisition book. The cards have columns for quantity received, date received, and the initials of the receiving technologist.

Computer program. Here we get an overview of purchasing activity. Once all items on a requisition are delivered, I enter the information into our Apple II Plus microcomputer, using file and report formats we developed with the Personal Filing System (PFS) from Software Publishing Corp., Mountain View,

Calif. Items received on standing orders are entered monthly.

When I began constructing our inventory system, I wasn't computer-smart. But I knew that a microcomputer could help keep data organized, track the flow of supplies and funds, and create reports quickly. So I described what was needed to chemistry supervisor Jim Vaillancourt, who is well versed in software. He recommended PFS and was instrumental in getting it to work as well for us as it does.

We named our program Inventory /Money Management System --IMMS for short. It provides a wealth of information in several reports generated by a few keystrokes. For example, we get information on lead time (days from order to delivery); dollars spent with each supplier over six months, which facilitates negotiations for discounts; reagent and supply costs of running an assay, useful if we're considering a method change; and expenditures within account numbers (reagents, disposables, controls, and so forth), an auditing aid that helps keep the department within budget.

In addition, reports that monitor monthly expenditures enable us to predict heavy ordering periods and budget accordingly. For example, I want to be reminded when we have to order the year's supply of quality control material or printer paper. And with a data base of at least six months' expenditures, we can more accurately project how much we need in the way of supplies over the course of a year.

The information we draw out of the computer is only as good as the data we put into it. It's important to be consistent with past terminology when adding forms to the system. To that end, I compiled lists of the computer abbreviations we use for suppliers and products, chemistry tests, and instruments.

Figure II is a sample computer form. It deals with two instrument brushes ordered on Dec. 14, and lists the supplier, the analyzer, the price of the brushes, the purchase order and account numbers, and when the items were received.

Each item gets its own form. If seven items are ordered on a single requisition, seven forms are added to IMMS. The computer summarizes data on the forms for whatever reports we request.

Let's say that in January I want to find out how much the department spent on drug analyzer supplies in the last three months. I instruct the computer to pull the drug analyzer system files for those months by entering "Month: >9" and "System: TDX" on the retrieval page of the program. In a few minutes the report is printed.

The most common documents generated are labeled Monthly Report, Standing Orders Rec'd, Outstanding Orders, and Monthly Account Summary. By adding the monthly report total (Figure III) to the standing orders received total (Figure IV), I keep tabs on what we spend each month. I use the outstanding orders report to follow up on delinquent deliveries.

The monthly account summary shows exactly how much the department has spent on reagents, disposables, instrument repair, and other accounts. When placed in a year-to-date format, the summaries show at a glance how the budgeted money for our chemistry section is being spent.

This is our third fiscal year on the system, and it's still evolving. We recently added a VisiCalc electronic spreadsheet program to generate year-to-date summaries more quickly.

I'm confident that our inventory control and money management system can work in any laboratory, with modifications to suit each situation. In fact, once our laboratory's director saw how useful it was in the chemistry section, she extended it to all other sections of the lab.

Table: Figure I A page from the requisition book

Table: Figure II A computer file for one requisition

In the lab's fiscal year coding system, month number 10 is December. PO stands for purchase order, and the chemistry section account code, 6470, is for instrument parts.

Table: Figure III Monthly purchases listed by test system

Table: Figure IV Summary of standing-order deliveries

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POWERED BY **Dialog***Consider***Bar code standards help ease adoption**

Anonymous

*Hospital Materials Management*, v22n5, Page: 13, May 1997

The Efficient Healthcare Consumer Response study, published in November, identified \$11 billion in potential savings through more efficient supply distribution. It also found that in comparison with other contract and pricing elements, electronic product identification was low in risk and high in reward potential.

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One component of the new materials management system under development at Columbia/HCA is the requirement that suppliers must furnish a universal product number (UPN), with every item. (See story, page 1, this issue.)

It's a big transition for the Nashville, Tenn.-based hospital system. Currently most of the 343 hospitals use a combination of vendor product numbers and Columbia item numbers to keep track of the nationally contracted purchases.

But while it is notable for the speed and size of its project, Columbia is not alone in choosing to deal exclusively in products bearing UPNs, or bar codes, as they are commonly called.

Its runner up in size among hospital systems, Tenet Healthcare Corp., Santa Barbara, Calif., is also starting to require suppliers to use UPNs. So will Kaiser Permanente, the Oakland, Calif.-based HMO as it establishes national contracts in the coming year.

**Big savings potential**

The Efficient Healthcare Consumer Response study, published in November 1996 by five health care and industry organizations, identified \$11 billion in potential savings though more efficient supply distribution.

It also found that in comparison to other contract and pricing elements, electronic product identification was low in risk and high in reward potential-but low in current usage.

The Uniform Code Council, Dayton, Ohio, was one of the five sponsors of the EHCR study. The council has issued code standards that comply with requirements of the Department of Defense, one of the first and largest boosters of UPNs.

Now the council is trying to encourage all suppliers to furnish the code, which is all numeric and contains primary product identification as well as secondary information such as lot number, expiration date, and purchase order number.

**Catalog number can stay**



There is also room for a catalog number assigned by the manufacturer, currently the most familiar way of ordering and referring to many medical-surgical products.

That's a big benefit, according to the council's business manager for health care, Jamie Bedard.

"It's a misconception that UCC coding must replace catalog numbers," Bedard said. "Even after 20 years of use in the grocery industry, customers don't ask for a can of 051000000118. They ask for Campbell's Tomato Soup."

The same is true in other industries, he added: "Even after many years of using bar codes, many retail and commercial products retain a human-readable catalog or part number on the item to aid employees in quickly identifying the product."

The 12-digit code above is the standard universal product code, or U.P.C. It is part of the 14-digit number the council calls the SCC-14. The remaining two digits are leading zeros.

Besides inventory management, the bar code allows for speedier processing by electronic scanning of bills of lading and shipping manifests. Employees scan each item or case as shipments are loaded, to create a positive manifest.

"Many common carriers are now accepting this type of scanned data for bills of lading and shipping manifests, Bedard said.

At the other end, goods can be scanned right on the receiving dock.

Receiving personnel compare the goods as they come in with the list of codes on the manifest. This method quickly alerts them about materials that were not shipped or have not yet been unloaded.

The proliferation of scanning has made bar codes useful not just at the point of sale, but all along the supply chain.

"Scanning from point of manufacture through point of use," noted Bedard, is becoming commonplace in many industries as a way to gain control over material use and disposition.

In a provider's setting, it also provides increased knowledge about the actual costs of procedures and the profitability of managed care contracts."

Even if a hospital is not yet on line with electronic processing, he added, bar codes, with their standard construction, help in manual reconciliation of purchase orders, packing lists, and invoices.

The number of converts is growing. Since the DoD issued its ultimatum to vendors last year, more and more hospitals, GPOs and other health care facilities have done the same.

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POWERED BY **Dialog***Considered* Fulltext available through: **USPTO Full Text Retrieval Options****Compliance labeling: That's the ticket**

Terrerri, April

*Warehousing Management , v7n8 , Page: 44-48 , Sep 2000 (includes Illustration Photograph)*

Compliance labeling offers enormous bottom-line benefits in time savings as it streamlines activities along the supply chain. Industry experts generally agree that the practice refers to product manufacturers who comply with labeling requirements established by retailers, industrial/commercial supply chains and specific industries. The two most critical components of compliance labeling are product identification and shipment identification. An important component of any carton compliance labeling system is the use of the electronic ASN between trading partners.

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Product identification labels that are not in compliance with customer requirements can result in large fines

Increased profitability. Those two words are music to the ears of warehouse executives. In fact, companies all along the supply chain strive everyday to get the right products to the right locations in the right quantities in the shortest period of time - with an accuracy rate of 100 percent. It sounds like a tall order, but compliance labeling, with its integrated systems of bar code printers, scanners, verifiers and software, can make all of these things -- increased profitability included - possible through better inventory control and management.

That little label you see on shipping cartons is loaded with crucial bar-coded information that is revolutionizing efficiencies, as it enhances information visibility for everyone along the supply chain. Compliance labeling offers enormous bottom-line benefits in time savings as it streamlines activities along the chain. To top it off, it accomplishes all of this virtually error-free.

'Any glitch within that supply chain will cost someone some money along the way,' says Doug Wagner, national sales manager for Philadelphia-based Avery Dennison Printer Systems.

Product manufacturers could lose in big ways if they ignore or delay implementing compliance labeling. "Manufacturers are facing tough penalties and risking lost business if they do not use compliance labeling," says Kathy Young, marketing manager for Winco Identification Corp., Nashua, NH.

Warehouses and DCs are critical links in the supply chain as they control and manage inventory for their customers. Compliance labeling helps them receive and store inventory efficiently until products need to be shipped to their final destinations. When inventory is ready to be released, warehouses facilitate swift delivery by creating shipping labels, themselves compliant to the original compliance label but now including final destination information. But failing to do so could be costly.

"Some of the biggest fines are imposed for product identification labels that are not in compliance with

retailers' requirements," says Rick Bushnell, president of Quad II, Chalfont, PA, and author of Compliance Labeling: How to Do It.

Compliance labeling: What is it?

Few would disagree that confusion exists over the definition of compliance labeling, the practice of which is still evolving. However, industry experts generally agree that the practice refers to product manufacturers who comply with labeling requirements established by retailers, industrial/commercial supply chains and specific industries (such as automotive, which has its own standards).

The two most critical components of compliance labeling are product identification and shipment identification. To simplify a process with many variations on this theme, compliance labeling could mean that a product manufacturer will prepare shipping carton labels so that specific bar-coded information appears consistently in an exact location on compliance labels.

Those labels must appear in a specific area of a shipping box. Otherwise, "it will not get scanned," says Wagner, "which means the product will either be returned [and the warehouse assessed a penalty] or that box will have to be examined manually to determine what the contents are - and this increases the cost associated with this shipment."

Although the word is that penalties are assessed for non-compliance, "it's probably more punitive than anything," says Clifford Lynch, executive vice president of Memphis-based The Continental Group, a logistics consulting firm.

A compliance label is quite an impressive informant. With its product identification information, it informs the product manufacturer of the status of their own internal inventory. It informs the warehouse manager of exactly what is in the boxes arriving at the receiving dock, where they should be stored, and when they have to be shipped. And it informs the retailer of what they are receiving, and where that particular labeled box must go to be sold to consumers.

The real estate of a compliance label is carefully and thoughtfully designed. Specific sections might be reserved exclusively for information crucial to the manufacturer, to the warehouse operator, to the carrier or to the retailer. Bar-coded information could include things such as the product's UPC number, purchase order numbers, serial case code numbers (sometimes referred to as "pin" - package identification numbers), value of the purchase order, quantities, part numbers and line-item descriptions.

Compliance labeling can include UPCs, SCCs and SSCCs. The UPC universal product code - is the 12-digit number identifying what the product is and who manufactured it. The SCC or shipping container code (now being referred to as EAN/UCC 14 by the UCC) - is a 14-digit code identifying the quantity of items within a shipping carton. The SSCC (UCC14) - the serialized shipping container code - is sometimes referred to as a UCC128 (Universal Container Code). The SSCC provides the link to the advance shipping notice (ASN) file containing specific shipping information in addition to identifying product and manufacturer.

An important component of any carton compliance labeling system is the use of the electronic ASN between trading partners. "The ASN becomes critical because it provides visibility of shipment and product information associated with a specific bar code prior to receipt of the product," says Harry Blunt, sales and marketing manager for Philadelphia-based Avery Dennison VIP Converted Products, a manufacturer of label printers and labels.

With the use of compliance labeling, operators of warehouses and DCs are able to breeze efficiently through incoming shipments, while directing the proper shipments to the right retailer, virtually error-free.

"The compliance label on a shipping carton is like a license plate that is tied into a specific PO number," says Bob Karr, vice president of marketing for Sato America Inc., in Sunnyvale, CA. "When they scan that box at the receiving dock, they know exactly what's in that box and where it's supposed to go. Say, for example, the box was part of a larger shipment of 10 boxes. They know immediately that this is box No. 2 of those 10 boxes and that this box contains red dresses going to J.C. Penney." Karr notes that the box can then be crossdocked for immediate shipment.

Retailers typically initiate compliance labeling requirements. "They want to efficiently receive, distribute and route goods," says Avery Dennison's Blunt. "If I don't have incoming products labeled with bar codes, I have to manually check everything and that's why retailers drive a lot of these labeling requirements. If cartons and pallets can be properly identified with compliance labels further upstream by suppliers, some of the inbound labeling being done just to bring products into inventory could be eliminated."

#### Keeping customers happy

Product manufacturers are finding that compliance labeling can be a complex process. "The problem is that so much of this is almost custom-made," says Continental's Lynch.

When Lynch worked for Quaker Oats Co., and Wal-Mart wanted Quaker Oats' granola bars packaged with three different flavors in a shrink-wrapped package, Quaker had to reconsider packaging the bars to comply to Wal-Mart's request.

"It's difficult for a manufacturer to conform to all of these different requests from individual customers - it's a cumbersome process," says Lynch. For example, a manufacturer may have 100 customers, and just as many different sets of compliance demands. Product manufacturers try to satisfy each of those 100 needs while working within a template concept, which can be modified according to who the customer is, and according to whatever that customer's compliance labeling might be.

The keystone element within a compliance philosophy is the UPC number. However, as Quad II's Bushnell points out, confusion arises when companies ask to have products private-labeled over the standard UPC number.

"For general trade items like the millions of rolls of tape 3M manufactures, they don't label a roll of tape one number for the automotive industry and then another number for the electrical industry," says Bushnell. Using the UPC number assigned by 3M for this roll of tape, for instance, will keep the tape's identity intact throughout the supply chain, no matter where or in what industry the tape winds up.

In the case of a public warehouse whose customers might include companies like CVS and Eckerd Drug Stores, compliance labeling becomes increasingly important.

"If the information on the label is not accurate, it's possible that the wrong product could be sent to CVS instead of Eckerd," says Avery Dennison Printer Systems' Wagner. "As each product is shipped from the warehouse, compliance labels are scanned and customers have instantaneous information about the status of their inventory."

UCC128 (or SSCC) and cross-docking are crucial by-products of compliance labeling. UCC 128 labeling allows access to a file that identifies specific information by shipment and purchase order number, unlike the UPC product identification number assigned by the manufacturer. This system makes it easier on a warehouse manager, who immediately knows who the container is from and what it contains. He can then direct the container either to inventory or to be cross-docked.

Cross-docking eliminates the need to physically move shipments into inventory, allowing shipments to be received in one bay and shipped out from another bay. "This is why that compliance label is so vitally important to them because without it, what they would have to do is to physically inspect the shipment against the PO and verify that the cartons are there," says Blunt. "Then they would have to bring that shipment into inventory and wait for a separate order to release it from inventory, which can take days."

Although compliance labeling is initiated primarily at the product manufacturer level, it also occurs regularly at warehouses and distribution centers. Say, for example, a home supplies retailer sends five cases of power drills destined for Chicago to its warehouse. "When that shipment arrives in the warehouse, it hits a conveyor line, which may be equipped with a scanner and automatic label print/apply system. The scanner immediately reads the barcoded information, so the system knows the shipment is destined for Chicago," says Wagner.

Warehouse workers need to pay careful attention to ensure that labels are placed in the specific area requested by the customer.

The system automatically prints and applies another shipping label and the products are directed to a particular loading area to be stationed with all other products destined for Chicago. Some industry experts say that utilizing compliance labeling could increase throughput by 20 to 30 percent. "Companies can better manage their inventories, receipt of items and their orders to suppliers, so they can handle the increased volume without adding more staff, who can now spend more time on customer service issues," says Bushnell.

Reduced inventories are everyone's dream come true, and compliance labeling can help achieve that goal. "Let's face it - inventory is money sitting idle," says Sato's Karr. "People don't have to forecast months in advance, buying inventories and then having to hold them. So the less inventory you have, while meeting customers' demands, the better your bottom line."

Key to products flowing efficiently through the supply chain is the total involvement of everyone along the chain. "If there is a weak link, it compromises this whole idea of efficiencies and having the right products at the right place at the right time," says Karr.

Proper labeling allows customers to have instantaneous information about the status of their orders.

If a parts manufacturer is producing a specific part for another company's product, he needs to get that part to that company in a timely and efficient manner. "Otherwise, everything will come to a grinding halt because that parts manufacturer didn't deliver some small part," says Karr. "So everyone needs to be on board."

Utilizing bar codes eliminates the margin of error, and "its use allows people to make bold statements about the accuracy of these systems," Bushnell concludes. "Compliance labeling is only a part of supply chain management. You need management systems to integrate all of this together, and the good news is that the software to do all of this is becoming more affordable."

By April Terreri, Contributing Editor

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*Considered***BAR CODE STANDARDS HELP EASE ADOPTION***Hospital Materials Management , Volume: 20 , Number: 5 , Page: N/A , May 1 1997*

One component of the new materials management system under development at Columbia/HCA is the requirement that suppliers must furnish a universal product number (UPN), with every item. (See story, page 1, this issue.)

It's a big transition for the Nashville, Tenn.-based hospital system. Currently most of the 343 hospitals use a combination of vendor product numbers and Columbia item numbers to keep track of the nationally contracted purchases.

But while it is notable for the speed and size of its project, Columbia is not alone in choosing to deal exclusively in products bearing UPNs, or bar codes, as they are commonly called.

Its runner up in size among hospital systems, Tenet Healthcare Corp., Santa Barbara, Calif., is also starting to require suppliers to use UPNs. So will Kaiser Permanente, the Oakland, Calif.-based HMO as it establishes national contracts in the coming year.

**Big Savings Potential**

The Efficient Healthcare Consumer Response study, published in November 1996 by five health care and industry organizations, identified \$11 billion in potential savings through more efficient supply distribution.

It also found that in comparison to other contract and pricing elements, electronic product identification was low in risk and high in reward potential--but low in current usage.

The Uniform Code Council, Dayton, Ohio, was one of the five sponsors of the EHCR study. The council has issued code standards that comply with requirements of the Department of Defense, one of the first and largest boosters of UPNs.

Now the council is trying to encourage all suppliers to furnish the code, which is all numeric and contains primary product identification as well as secondary information such as lot number, expiration date, and purchase order number.

**Catalog Number Can Stay**

There is also room for a catalog number assigned by the manufacturer, currently the most familiar way of ordering and referring to many medical-surgical products.

That's a big benefit, according to the council's business manager for health care, Jamie Bedard.

"It's a misconception that UCC coding must replace catalog numbers," Bedard said. "Even after 20 years of use in the grocery industry, customers don't ask for a can of 051000000118. They ask for Campbell's

Tomato Soup."

The same is true in other industries, he added: "Even after many years of using bar codes, many retail and commercial products retain a human-readable catalog or part number on the item to aid employees in quickly identifying the product."

The 12-digit code above is the standard universal product code, or U.P.C. It is part of the 14-digit number the council calls the SCC-14.

The remaining two digits are leading zeros.

Besides inventory management, the bar code allows for speedier processing by electronic scanning of bills of lading and shipping manifests. Employees scan each item or case as shipments are loaded, to create a positive manifest.

"Many common carriers are now accepting this type of scanned data for bills of lading and shipping manifests, Bedard said.

At the other end, goods can be scanned right on the receiving dock.

Receiving personnel compare the goods as they come in with the list of codes on the manifest. This method quickly alerts them about materials that were not shipped or have not yet been unloaded.

The proliferation of scanning has made bar codes useful not just at the point of sale, but all along the supply chain.

"Scanning from point of manufacture through point of use," noted Bedard, is becoming commonplace in many industries as a way to gain control over material use and disposition.

In a provider's setting, it also provides increased knowledge about the actual costs of procedures and the profitability of managed care contracts."

Even if a hospital is not yet on line with electronic processing, he added, bar codes, with their standard construction, help in manual reconciliation of purchase orders, packing lists, and invoices.

The number of converts is growing. Since the DoD issued its ultimatum to vendors last year, more and more hospitals, GPOs and other health care facilities have done the same.

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